

## CLAIMS

1           1. A system for self-authenticating a first end-user connected to a common network  
2           and a second end-user connected to the common network, the first end-user being a customer  
3           of a first service provider of multiple service providers and the second end-user being a  
4           customer of a second service provider of multiple service providers, comprising:  
5                 a digital repository populated with  
6                         service provider entries including information about the first service provider  
7           and other information about the second service provider,  
8                         end-user entries including information about the first end-user and other  
9           information about the second end-user, each of the end-user entries being associated with at  
10          least one service provider entry, and  
11                         service description entries including information about a level of service  
12          purchased by an end-user from a service provider, each of the service description entries  
13          being associated with an end-user entry;  
14                 a processor; and  
15                 a computer readable medium encoded with processor readable instructions that when  
16          executed by the processor implement,  
17                         a new device detection mechanism configured to detect a new device  
18          connected to the common network, the new device being associated with one of the first end-  
19          user and the second end-user,  
20                         a bandwidth allocation mechanism configured to allocate limited bandwidth  
21          on the common network to the new device and to provide access to an end-user  
22          authentication mechanism,

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23 the end-user authentication mechanism configured to obtain identification  
24 information from the one of the first end-user and the second end-user,  
25 a service determination mechanism configured to query the digital repository  
26 to determine the level of service purchased by the one of the first end-user and the second  
27 end-user from a respective one of the multiple service providers based on information  
28 obtained by the end-user authentication mechanism,  
29 a service allocation mechanism configured to provide the level of service  
30 purchased to the one of the first end-user and the second end-user authenticated by the end-  
31 user authentication mechanism.

1 2. The system of Claim 1, wherein the digital repository comprises a database.

1 3. The system of Claim 1, wherein the common network comprises a network  
2 dedicated to broadband data transport services.

1 4. The system of Claim 3, wherein the data transport services comprise at least one of  
2 Internet access, voice over IP, and video on demand.

1 5. The system of Claim 1, wherein the common network comprises an open access  
2 network.

1 6. The system of Claim 1, wherein at least a portion of the common network  
2 comprises an Internet protocol network.

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1           7. The system of Claim 1, wherein at least a portion of the common network  
2 comprises a hybrid fiber optic coaxial network.

1           8. The system of Claim 1, wherein at least one of the multiple service providers  
2 comprises an Internet service provider.

1           9. The system of Claim 1, wherein at least a portion of the common network  
2 comprises a Data Over Cable Service Interface Specification network.

1           10. The system of Claim 1, wherein at least a portion of the common network  
2 comprises a European Data Over Cable Service Interface Specification network.

1           11. The system of Claim 1, wherein the bandwidth allocation mechanism is further  
2 configured to direct an end-user to the end-user authentication mechanism using a wildcard  
3 Domain Name System technique to resolve an end-user Domain Name System address  
4 resolution request to an IP address of the end-user authentication mechanism.

1           12. The system of Claim 1, wherein the bandwidth allocation mechanism is further  
2 configured to use a policy-based routing to direct an end-user to the end-user authentication  
3 mechanism.

1           13. The system of Claim 1, wherein the bandwidth allocation mechanism is further  
2 configured to use at least one of a Layer Two Tunneling Protocol and policy-based routing to  
3 direct an end-user to the end-user authentication mechanism.

1 14. The system of Claim 1 wherein the bandwidth allocation mechanism is further  
2 configured to set IP address filters at an end-user device to block addresses other than an IP  
3 address of the end-user authentication mechanism.

1 15. A method for self-authenticating a first end-user connected to a common network  
2 and a second end-user connected to the common network, the first end-user being a customer  
3 of a first service provider of multiple service providers and the second end-user being a  
4 customer of a second service provider of multiple service providers, comprising:

5 populating a digital repository with  
6 service provider entries including information about the first service provider  
7 and other information about the second service provider,

8 end-user entries including information about the first end-user and other  
9 information about the second end-user, each of the end-user entries being associated with at  
10 least one service provider entry, and

11 service description entries including information about a level of service  
12 purchased by an end-user, each of the service description entries being associated with an  
13 end-user entry;

14 detecting a new device connected to the common network, the new device being  
15 associated with one of the first end-user and the second end-user;

16 allocating limited bandwidth on the common network to the new device to provide  
17 access to an end-user authentication mechanism;

18 authenticating the one of the first end-user and the second end-user via the end-user  
19 authentication mechanism;

20 querying the digital repository to determine the level of service purchased by the one  
21 of the first end-user and the second end-user from a respective one of the multiple service  
22 providers based on information obtained in the obtaining step; and  
23 providing the level of service purchased to the one of the first end-user and the second  
24 end-user authenticated in the authenticating step.

1 16. The method of Claim 15, wherein the common network comprises a network  
2 dedicated to broadband data transport services.

1 17. The method of Claim 16, wherein the data transport services comprise at least  
2 one of Internet access, voice over IP, and video on demand.

1 18. The method of Claim 15, wherein the common network comprises an open access  
2 network.

1 19. The method of Claim 15, wherein at least a portion of the common network  
2 comprises an Internet protocol network.

1 20. The method of Claim 15, wherein at least a portion of the common network  
2 comprises a hybrid fiber optic coaxial network.

1 21. The method of Claim 15, wherein at least one of the multiple service providers  
2 comprises an Internet service provider.

1           22. The method of Claim 15, wherein at least a portion of the common network  
2 comprises a Data Over Cable Service Interface Specification network.

1           23. The method of Claim 15, wherein at least a portion of the common network  
2 comprises a European Data Over Cable Service Interface Specification network.

1           24. A system for self-authenticating a first end-user connected to a common network  
2 and a second end-user connected to the common network, the first end-user being a customer  
3 of a first service provider of multiple service providers and the second end-user being a  
4 customer of a second service provider of multiple service providers, comprising:

5           means for populating a digital repository with  
6           service provider entries including information about the first service provider  
7 and other information about the second service provider,  
8           end-user entries including information about the first end-user and other  
9 information about the second end-user, each of the end-user entries being associated with at  
10 least one service provider entry, and

11           service description entries including information about a level of service  
12 purchased by an end-user, each of the service description entries being associated with an  
13 end-user entry;

14           means for detecting a new device connected to the common network, the new device  
15 being associated with one of the first end-user and the second end-user;

16           means for allocating limited bandwidth on the common network to the new device  
17 and providing access to an end-user authenticating means;

18           means for authenticating the one of the first end-user and the second end;

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19 means for querying the digital repository to determine the level of service purchased  
20 by the one of the first end-user and the second end-user from a respective one of the multiple  
21 service providers based on information obtained by the means for authenticating; and  
22 means for providing the level of service purchased to the one of the first end-user and  
23 the second end-user authenticated by the means for authenticating.

1 25. A computer program product, comprising:  
2 a computer storage medium; and  
3 a computer program code mechanism embedded in the computer storage medium for  
4 causing a processor to self-authenticate a first end-user connected to a common network and  
5 a second end-user connected to the common network, the first end-user being a customer of a  
6 first service provider of multiple service providers and the second end-user being a customer  
7 of a second service provider of multiple service providers, the computer program code  
8 mechanism having,  
9 a first computer code device configured to maintain service provider information,  
10 end-user information, and service description information in a database,  
11 the service provider information including information about the first service  
12 provider and other information about the second service provider,  
13 the end-user information including information about the first end-user and  
14 other information about the second end-user and including an association between each end-  
15 user and at least one service providers, and  
16 the service description information including information about a level of  
17 service purchased by an end-user, and an association with an end-user;

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18 a second computer code device configured to detect a new device connected to the  
19 common network, the new device being associated with one of the first end-user and the  
20 second end-user;

21 a third computer code device configured to allocate limited bandwidth on the common  
22 network to the new device and to provide access to a fourth computer code device;

23 the fourth computer code device configured to authenticate an end-user based on  
24 identification information obtained from the one of the first end-user and the second end-  
25 user;

26 a fifth computer code device configured to query the database to determine the level  
27 of service purchased by the one of the first end-user and the second end-user from a  
28 respective one of the multiple service providers based on information obtained by the fourth  
29 computer code device; and

30 a sixth computer code device configured to provide the level of service purchased to  
31 the one of the first end-user and the second end-user.

1 26. The computer program product of Claim 25, wherein the common network  
2 comprises a network dedicated to broadband data transport services.

1 27. The computer program product of Claim 26, wherein the data transport services  
2 comprise at least one of Internet access, voice over IP, and video on demand.

1 28. The computer program product of Claim 25, wherein the common network  
2 comprises an open access network.



1 29. The computer program product of Claim 25, wherein at least a portion of the  
2 common network comprises an Internet protocol network.

1 30. The computer program product of Claim 25, wherein at least a portion of the  
2 common network as a hybrid fiber optic coaxial network.

1 31. The computer program product of Claim 25, wherein at least one of the multiple  
2 service providers comprises an Internet service provider.

1 32. The computer program product of Claim 25, wherein at least a portion of the  
2 common network comprises a Data Over Cable Service Interface Specification network.

1 33. The computer program product of Claim 25, wherein at least a portion of the  
2 common network comprises a European Data Over Cable Service Interface Specification  
3 network.

1 34. The computer program product of Claim 25, wherein the third computer code  
2 device is further configured to direct an end-user to the end-user authentication mechanism  
3 using a wildcard Domain Name System technique to resolve an end-user Domain Name  
4 System address resolution request to an IP address of the fourth computer code device.

1 35. The computer program product of Claim 25, wherein the third computer code  
2 device is further configured to use policy-based routing to direct an end-user to the fourth  
3 computer code device.

1 36. The computer program product of Claim 25, wherein the third computer code  
2 device is further configured to use at least one of a Layer Two Tunneling Protocol and  
3 policy-based routing to direct an end-user to the fourth computer code device.

1 37. The computer program product of Claim 25 wherein the third computer code  
2 device is further configured to set IP address filters at an end-user device to block addresses  
3 other than an IP address of the fourth computer code device.

1 38. A method for self-authenticating a first end-user connected to a common network  
2 and a second end-user connected to the common network, the first end-user being a customer  
3 of a first service provider of multiple service providers and the second end-user being a  
4 customer of a second service provider of multiple service providers, comprising the steps of:

5 detecting a new device connected to the common network;

6 granting a limited bandwidth on the common network to the new device;

7 authenticating one of the first end-user and the second end-user of the new device  
8 through an application accessible over the limited bandwidth;

9 determining a level of service purchased from a respective one of the first service  
10 provider and the second service provider by the one of the first end-user and the second end-  
11 user identified in the authenticating step; and

12 providing the level of service purchased on the common network to the one of the  
13 first end-user and the second end-user.